

### REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on December 19, 2006, and the references cited therewith.

Claims 1, 6, and 8 are amended, claims 11-14 are withdrawn, and claims 15-20 are added; as a result, claims 1-10 and 15-20 are now pending in this application.

#### §102 Rejection of the Claims

Claims 1-3 and 6-10 were rejected under 35 USC § 102(b) as being anticipated by (U.S. 5,985,388 ('308)). Claims 1-3 and 6-8 were rejected under 35 USC § 102(b) as being anticipated by (U.S. 6,333,093 ('093)). For a prior art reference to anticipate, every element of the claimed invention must be identically disclosed in a single prior art reference; and those elements must be arranged or connected together in a single reference in the same way as specified in the patent claim. Applicant respectfully submits that neither the '308 Patent nor the '093 Patent anticipate applicant's claimed invention.

Applicant claims "a reactive material associated with the support material, *said reactive material effective to react with a contaminant.*" Neither of the cited references discloses a reactive material for reacting with the contaminant to form a different compound that is less contaminating. Both the '308 Patent and the '093 Patent teach forming anti-microbial material containing one or more metals. The cited art patents teach creating atomic disorder in certain material under certain conditions. This increases the solubility of the material and allows the material to release metal in certain forms into a solvent. The solvent then provides the desired antimicrobial effects. See '308 Patent, Col. 4, lines 24-35 and Col. 6, lines 44-65; '309 Patent, Col. 10, lines 24-52. The released ions maintain their composition and merely become solutes in a solvent. Thus, the prior art may temporarily deal with the effects of the contaminant, however, it does not change the contaminant itself. In contrast, Applicant's invention alters the contaminant itself, which may provide a more lasting solution to the contaminant problem.

Applicant's invention does not create an antimicrobial solvent and does not use solubility as the desired method to make antimicrobial material. Instead, Applicant's invention provides material that can react with the various microbes or contaminants that it comes in contact with to chemically form a new compound; not just the same compound as a solute in a solvent.

Applicant claims "reactive material associated with the support material, said reactive material effective to react with a contaminant." Neither reference cited by the Examiner teaches this limitation. Accordingly, the cited art does not anticipate Applicant's invention.

#### New Claims 15, 17, and 19

Applicant's new claims 15, 17, and 19 include the limitation "the beneficial material comprises at least one water insoluble peroxide chosen from  $\text{MgO}_2$ ,  $\text{BaO}_2$ ,  $\text{SnO}_2$ ,  $\text{AgO}$ ,  $\text{CaO}_2$ ,  $\text{CuO}_2$  and  $\text{ZnO}_2$ ." As the Examiner noted in the office action, the prior art does not contain this limitation. Applicant claims peroxides as a reactive material. The prior art teaches inert metal oxides. However, metal oxides are different than metal peroxides and metal superoxides. The peroxide is much more reactive than the oxide which is very inert. Likewise a superoxide is also different from an oxide. Applicant teaches and claims use of reactive material in the form of the known peroxides  $\text{MgO}_2$ ,  $\text{BaO}_2$ ,  $\text{SnO}_2$ ,  $\text{AgO}$ ,  $\text{CaO}_2$ ,  $\text{CuO}_2$  and  $\text{ZnO}_2$ . None of these compounds are metal oxides. The cited references do not teach peroxides and accordingly, new claims 15, 17, and 19 are not anticipated by the prior art.

#### New Claims 16, 18, and 20

Applicant's new claims 16, 18, and 20 include the limitation "the beneficial material comprises at least one water insoluble peroxide chosen from  $\text{La}_2\text{NiO}_{4+\delta}$ ,  $\text{La}_2\text{CuO}_{4+\delta}$ ,  $\text{CeNiO}_{4+\delta}$ , and  $\text{Ce}_2\text{CuO}_{4+\delta}$ ." The cited references do not teach water insoluble excess oxygen containing compounds. The cited references teach increased solubility, not insolubility. The cited references do not give any examples of excess oxygen containing compounds nor teach their use in any way. Oxides are not excess oxygen containing compounds. They are stable with their Oxygen molecule and do not have excess oxygen to give. The "+ $\delta$ " designation when used with a number of a molecule is known in the art to mean more than the stoichiometric amount of the molecule. For example, the designation  $\text{O}_{4+\delta}$  is known to mean excess oxygen beyond the stoichiometric amount that would be found in  $\text{O}_4$ . Excess oxygen containing compounds are less stable and thus reactive, which accomplish the purposes of Applicant's invention not the inventions disclosed in the cited references. The cited references do not teach excess oxygen containing compounds and certainly not insoluble ones. Accordingly, the cited references do not

anticipate new claims 16, 18, and 20.

§103 Rejection of the Claims

Claim 4 was rejected under 35 USC § 103(a) as being unpatentable over any of the '308 Patent or the '093 Patent in view of U.S. Patent No. 6,190,407 (the '407 Patent). In order for a combination of references to render a claim obvious under Section 103, three criteria must be met: 1) the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references; 2) the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made; and 3) the prior art reference or combination of references must teach or suggest all the limitations of the claims. Applicant respectfully submits that for the reasons set forth below, the combination of prior art references does not render Applicant's claims obvious.

The Examiner cites the '407 Patent as a prior art obviousness reference because it mentions using super oxides as an oxidizing agent. However, the '407 Patent teaches the use of a super oxide to create "oxidizing conditions to enhance the dissolution of the antimicrobial elemental metal. Oxidation is a necessary step to the solubilization of the metal as a metal compound or metal ion." Applicant claims insoluble peroxides as a beneficial material. The '407 Patent teaches using peroxides as a surface preparation to enhance of the dissolution of an antimicrobial metal in a beneficial agent. There is no suggestion in the prior art to use the peroxide as the insoluble beneficial agent. The teaching of the '407 Patent to increase solubility of the antimicrobial or beneficial agent teaches away from Applicant's claim of using insoluble peroxides as a beneficial agent.

Often times, particularly with the aid of hindsight, the art appears combinable or modifiable in a manner that will yield the claimed invention. That itself will not make the resultant modification obvious, however. The art must still suggest the desirability of the modification. See *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification



obvious unless the prior art suggested the desirability of the modification." ). The Examiner has not pointed to any suggested to utilize peroxides as a water insoluble beneficial agent.

Additionally, the combination of the '308, '093 and '407 references do not teach all of the claimed limitations. As stated in the office action, the '308 and '093 references do not teach a beneficial material comprising at least one water insoluble peroxide chosen from  $\text{MgO}_2$ ,  $\text{BaO}_2$ ,  $\text{SnO}_2$ ,  $\text{AgO}$ ,  $\text{CaO}_2$ ,  $\text{CuO}_2$  and  $\text{ZnO}_2$ . The '407 does not teach this limitation either. As discussed above, the '407 Patent does not teach using *water insoluble peroxides*, it does not teach using peroxides as the beneficial agent, and does not teach any of the specific compounds of  $\text{MgO}_2$ ,  $\text{BaO}_2$ ,  $\text{SnO}_2$ ,  $\text{AgO}$ ,  $\text{CaO}_2$ ,  $\text{CuO}_2$  and  $\text{ZnO}_2$ . Accordingly, the '308, '093 and '407 references do not render Applicant's claim 4 obvious.

The Examiner rejected claim 5 as being unpatentable over any of the '308 Patent or the '093 Patent in view of U.S. Patent No. 6,573,205 (the '205 Patent). The Examiner states that the '205 Patent references infection control products comprising a perovskite. The '205 Patent, however, teaches filtering media. Perovskites, according to the '205 Patent, are used because they are good ferroelectric materials that may exhibit a spontaneous dipole moment. The composite material taught by the '205 Patent is "desirably treated to become electrostatically polarized, i.e. to exhibit an electrostatic charge or field and thereby comprise an electret. In this regard it is noted that electrostatically charging the material can improve the filter efficiency of the material." Perovskites are used in the '205 Patent to improve filter efficiency of the material. Nowhere in the '205 Patent is it suggested to use a perovskite as a beneficial agent for reacting with a contaminant. The '205 Patent certainly does not teach or suggest using specific perovskites because of their excess oxygen containing compounds. One of skill in the art would not think to use a filter material desired for its ability to exhibit an electrostatic charge as a water insoluble reactant to a contaminant.

Applicant claims a beneficial material comprising at least one *water insoluble* excess oxygen containing compound chosen from perovskites of  $\text{La}_2\text{NiO}_{4+\delta}$ ,  $\text{La}_2\text{CuO}_{4+\delta}$ ,  $\text{CeNiO}_{4+\delta}$ , and  $\text{Ce}_2\text{CuO}_{4+\delta}$ . As examiner noted in the office action, the '308 and '093 Patents do not teach these limitations. The '205 Patent also does not teach these limitations. The '205 Patent does not teach using perovskites as a water insoluble excess oxygen containing compound. The '205 Patent does not teach using perovskites as a beneficial agent. Finally, the '205 Patent does not

teach the use of one or more of the specific perovskites:  $\text{La}_2\text{NiO}_{4+\delta}$ ,  $\text{La}_2\text{CuO}_{4+\delta}$ ,  $\text{CeNiO}_{4+\delta}$ , and  $\text{Ce}_2\text{CuO}_{4+\delta}$ . Accordingly, there is no suggestion to combine the combination of references cited by the examiner and the combination does not teach every limitation. Thus, Applicant's claims are not obvious over the prior art.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (801-978-2186) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-3586

Respectfully submitted,

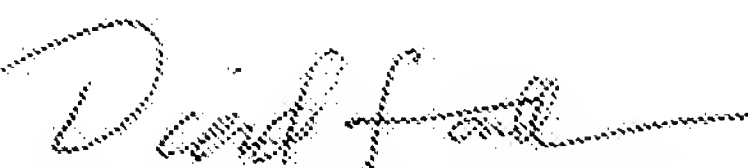
ASHOK V. JOSHI

By his Representatives,

Date

5/24/07

By



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